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Atomic-Antarctic Terminal Zone

This article proceeds to investigate Antarctica as a preparatory zone for the Cold War and closed-world techno-power to come. Particularly, the essay steers in the direction of incorporations between the animate and the inanimate: flesh, ice, machine, combining into a new, cyborgic entity that emerges in the pre-Cold War Antarctic. The material under consideration includes Heroic Age exploration narratives and science fiction (SF) texts published prior to the Cold War, but rather than anachronistic, the point is to establish continuity between imperial, geopolitical and technological strategies that absorb white space—an 'emptiness' as promise of colonization—into its sphere of operations. The thrust of the argument centres on the formation of a 'figure of steel'—the '*Stahlgestalt*'[1]—that develops in and against a space of erasure also experienced, paradoxically, as a process of emollition, or depletion: ice-cold, unyielding territoriality prompts a softening of the (male) body, whose movement and mind turn sluggish, slow.[2] The modes of polar being as proto-cyborgic, then, arise in response to a corporeal inteneration in what figures, across expedition and SF texts, as a dream-space associated with 'beyonds': infinite absence, immeasurable time, both past and future, the far side of the 'human', shaping into a 'fortified totality'.[3]

The discourse that gives shape to the following article arises in a body of work that is not necessarily American, even though it finally is US Cold War culture that occupies the core of this investigation; irrespective of their origin, expedition documents operate in the service of empire. They include Harold

Ponting's *The Great White South, Or With Scott in the Antarctic* (1921); Douglas Mawson's *The Home of the Blizzard: Being the Story of the Australasian Antarctic Expedition, 1911–1914* (1915) as well as Richard Byrd's two books, *Little America: Aerial Exploration in the Antarctic and the Flight to the South Pole* (1931) and *Alone* (1939). This 'archive', at times, varies significantly in terms of its disposition, often already recognizable in the prefaces to exploration accounts: Mawson is entranced, Byrd's later text, *Alone*, a record of un-making, while *Little America*, in conjunction to Ponting's *The Great White South*, is clearly concerned with technologies of capture or containment: data secured, documented, distributed, in Ponting's case, as war-time, front-line propaganda. Yet, what unites these works is a particular vantage point that remains focused on the effects Antarctica has on the disbanding body of the explorer, operating in/against a space understood as fundamentally unintelligible: the 'abiotic, acultural, alien' Antarctic.[4] A 'fine and manly spirit', designed to inspire 'the rising generation'[5] at home and at war, forms—or disintegrates—in an environment that invariably consolidates its position as a world apart. Because to enter Antarctica also means to engage with science fiction: references to SF exist in exploration narratives, so intent on conveying the absolute otherness of the place. H.P. Lovecraft's 'At the Mountains of Madness' (1931) and John W. Campbell Jr.'s 'Who Goes There' (1938), stories about alien entities mimicking terrestrial life, are embedded in the analysis of expedition accounts, yielding a synthesis indicative of their shared concerns: paranoia, deep space, end-time threats, breaches, engulfment, containment culture.

The objects of study, though, rather than existing in sharp specificity (even if Byrd is a recurring figure), function as phenomena—emergent then disappearing—that consolidate a process of reasoning seeking to mirror its subject matter: a terminal zone of ontological dissolution and reconstitution.[6] What happens in Antarctica is the emergence of a subject whose imperial identity suspends the definition of the 'human', unstable from the start, in favour of a superman explicitly linked to the machine and, more specifically, to the cybernetic systems of rocket technology. As such, it is a project about systems mergers, an embodied reality that unites separate entities in an integrated circuit reflected in terms of a narrative style that is, *Thing*-like, mimetic, operating according to principles of connectivity, multiplicity, processes of grafting. The machinery of the Cold War clamps across such interfacing spaces.

This means paying attention to signs of linkage like hyphens; ice-beings that portend cybernetic organisms, the latter splitting into two interlacing parts, black box technology and the creation of man-machine amalgamations. The controlling entity at the heart of the argument is the gyrocompass, a self-sufficient navigational instrument whose upgrades are later fitted into Intercontinental Ballistic Missiles (ICBMs) that, in turn, give rise to the cyborg. The gyrocompass functions simultaneously as concrete device and metaphor for a closed-world state that begins prior to the Cold War, in the Heroic Age of polar exploration, whose intentions coincide with Cold War politics. Expeditions and Cold War operations—containment cultures—prompt strategies of corporeal fusion and hardening; their objectives are the

formation and propagation of exceptionalist individual and, therefore, national distinction. The polar explorations, consequently, and in light of what is to come, indicate the suitability of the Antarctic for a project of similar magnitude: to brace the sovereignty of the empire of the atom bomb or of the rocket state. The alien coldness of the place lends itself to such exercises—to train personnel and test equipment—that sustain imperial and Cold War strategy congealing at the South Pole: the sense of superpower purpose and Manifest Destiny in an icy zone of sublime dreamworld and terror.

Cold Containment

The Cold War, as David Seed notes in his book on American SF of the period, 'was a metaphor', a conflict structured around key figures of speech 'like the analogy between the Soviet Union as "dangerous predators"'.[7] Seed proceeds to investigate SF in light of this discourse: the genre defamiliarizes the usage of these metaphors by 'rendering them as concrete metonyms',[8] yet the literal Cold War nonetheless lies outside the remit of his thesis. The conflict was often precisely what its designation implies: it was cold, associated with environments of low temperatures like the Polar Regions—north and south—whose integration into US Cold War strategy occurs both materially and spectrally, that is, through obfuscated policies. The South Pole, as a stealth landscape of the literal Cold War, warrants particular attention: Antarctic space is appropriated as a colonial outpost subjected to the Cold War state of exception, whose operations are at once camouflaged and sublime because of the weapon that carries it out and that establishes American superpower

mythology. The atom bomb yields a nuclear geography even before its detonation that is already expressed in the 'wasteland'[9] of the Antarctic, a 'dream of annihilation'[10] that unites polar topography with the ice-cold upshots of the nuclear weapon. Antarctica, as much as the Arctic, behaves as one of the Cold War's imaginary centres—ground zero of a coming emergency—but the conflict's politics are implemented in secret at the South Pole. Here, despite the hard evidence of the Arctic's inclusion into the US policy of containment—the 'over fifty radar stations'[11] that, in the early 1960s, comprise the DEW (Distant Early Warning) Line—crystallizes a superpower usually thought of in terms of heat-death but whose existence also depends on, and execution leads to, coldness.

Weapons technology maintains the Cold War's aesthetic of coolness, which relies on the interpretation of the atom bomb as agent freezing the world in nuclear deterrence. The gadget's mythical aim—as the guardian of a cold stasis—refers to a political system that operates as sub-zero insulation fantasy, but its infrastructure also insists, especially concerning the early generation missile force, on super-cold conditions. If the rocket/bomb's state of sustenance is coldness, so is its imagined outcome, the nuclear winter that takes dominion after an atomic meltdown freezes the world into a 'Deathkingdom'.[12] Prerequisite rocket storage circumstances and SF end-time result correspond, but the freezer society also unfolds at the poles which, irrespective of a nuclear detonation, function as the proving grounds and glacial dream-scenes of total defence. At the ends of the earth, they appear to indicate catastrophe while they undoubtedly prepare for it: the nuclear ballistic

culture of the Cold War inserts a topography that, as Jean de Pomereu notes, exists 'on the cusp of the indiscernible'[13] into the perimeters of its enclosing, world-reducing conflict. The prefixes 'in' and 'un'—as in an unimaginable, indescribable, unrepresentable landscape—are co-opted into 'unthinkable' strategies for nuclear war. The south polar expanse functions as yet another death node in cold containment culture.

In his book on the Cold War literary imagination, Adam Piette notes that '[i]n many ways, the Arctic came to symbolise the Cold War, secret, inaccessible, bitterly cold, hiding within its wastes enormous bases such as Thule in Greenland, incredible surveillance systems and mind-numbingly powerful weaponry'.[14] He is right to move north, into the 'death-zone of the Arctic',[15] where two monoliths, US and USSR, almost touch at the Bering Strait, a geopolitical border region that is militarised during the conflict: the Arctic transforms into a vital strategic deployment area whose topography allows war machines to go into hiding. The ice pack provides protective cover against air and satellite surveillance of undersea enemy operations, concealed amidst polar waters; intermediate range and intercontinental ballistic missiles use Arctic routes as arcs of destruction—the territory, besides nuclear-equipped submarines, also hosts radar outposts, the DEW Line and, later, the Ballistic Missile Early Warning System (BMEWS). Here occurs, as Melvin Conant writes, '[t]he long polar watch' against Soviet military power, opposed through 'arsenals of freedom',[16] the United States air defence, tracking and interception installations implanted in 'the ultimate bastion of the free

world'[17]: the North American polar environment locked into 'frozen attitudes of combat preparedness.'[18]

America's manoeuvres—starting with US Navy exercises in the mid- to late 1940s—at the South Pole integrate the region, however remote at first glance, into secret Cold War strategy: the Antarctic is finally valued as an environment that allows the rehearsal, and is indicative of the subsequent shadow logic, of Cold War culture. The latter not only transformed and manipulated American into atomic spaces, but also reached beyond the USA into '*terra nova*': there is no limit to the emergency state's appropriation of territory. The outer edges of the 'free world' keep being redrawn by national security directives that widen spheres of influence and defensive perimeters just as Rear-Admiral Richard Byrd, American hero/polar explorer, acts as Officer-in-Charge of Operation Highjump (1946–1947). Highjump, a US Navy undertaking in Antarctica, was primarily a military endeavour designed to train and test personnel and equipment in freezing conditions; it was the threat of war with the Soviet Union in the Arctic that motivated such operations. While Highjump was still at sea on March 12, 1947, the President proclaimed what became known as the Truman Doctrine, followed by a policy of active communist containment outlined by National Security Council (NSC)-68, which Truman signed on April 14, 1950. Highjump thus functions as an indication and early exercise of things to come—the impending Cold War—whose acts of camouflage also require shifts from one Pole to the other. The journey south anticipates the theatre of war in the north, whose secret preparation occurs in the Antarctic.

The Cold War, though, is but a continuation of earlier imperial projects: if Highjump was an engagement with cold warfare, it also sought to consolidate and extend US presence at the South Pole, where America desired to establish superpower politics through air bases but, even more so, through extensive research into hydrographic, geological and geographic measurements that would, in turn, inform its nuclear-ballistic 'arsenals of freedom'.[19] The ice into which Cold War America moves is 'imperial', as Jacqueline Dutton defines it in her paper on recent French and British Antarctic travel writing, contemporary journeys that, so she argues, are 'haunted by accounts of the first expeditions, which form a litany of apparently inevitable references'.[20] She continues, 'These accounts of past glory and danger frame the new narratives, confining them to an imperial paradigm of (re)discovery and conquest'.[21] The Cold War—no new narrative despite the Antarctic Treaty (1961), an experiment in cooperative internationalism—exists in an interface with preceding imperial initiatives that encode desires for supremacy, physical and technological as well as on the level of the individual and the body politic.

Prior to the Cold War, superpower sublimity at the poles meant the possibility to develop subjectivity in a void, the creation of 'a single attitude—a single state of mind—unfettered by the trivial considerations of civilisation'.[22] Writing in 1931, Richard Byrd refers to his mounting debts, but the 'trivial considerations of civilisation' equally indicate the gestation of an individual and, beyond that, of a nation-state that, in due course, replaces the Monroe with the Truman Doctrine. *Übermensch* or superman is a polar explorer, a

figure of superhuman identity that Nietzsche associates with ice in *The Anti-Christ* (1888);[23] 'Aryan' myths are similarly drawn to cold regions, where the master race emerged from and returns to in acts and fantasies of *Reich* gestation or resurrection.[24] The dream weapon, the atom bomb, fosters a monstrous Cold War culture that distinguishes itself, or remains indeterminate, through a boundless, shape-shifting national security state whose South Polar agenda includes the forging of a super-soldier: bodies of endurance, iron will, single-minded determination. The mission is to merge flesh with ice and gadget in an effort that simultaneously foresees, simulates and already experiences an apocalyptic future, a post-nuclear environment in which to prepare for final US 'victory'.

Gyro Culture

To enter the death culture of the literal Cold War means to cross over into Antarctica's heart of darkness, '[d]ark with excessive light',[25] where the arcs of intersection lie between Antarctic topography and atomic technology, interfacing to form a 'nuclear-polar terminal zone'.[26] Cold War manoeuvres, initially activated through US Navy Operations Highjump and Windmill (1947–1948), go undercover with the 1961 Antarctic Treaty providing insidious links to the political and technical culture of a bi-polar world, which it ostensibly sought to breach. The accord brought together enemies; the original signatories included the US and the Soviet Union in a legal framework that encouraged 'neutral', that is, international, apolitical research in which Antarctica figures as much as a no-man's land than as a shared space.

Yet the Treaty's internationalism and utopianism hid global strategy that continued to implement containment culture, despite the accord's provisions: to safeguard Antarctica as zone of peace—the obfuscated mandate, as ever, benefits the nuclear core of the weapons complex.

The accord developed out of the International Geophysical Year (IGY) which began on July 1, 1957 and ended on December 31, 1958; the initiative attempted to dispense with Cold War polarity and united scientists from 67 countries in a 'worldwide enterprise of data collection, analysis and exchange'.[27] The objective was to collate information on precarious surroundings and to establish, according to Kathryn Yussoff's description, an 'archive' of ice core knowledge, but the IGY also investigated, and therefore brought to light the links between, other special geographic realms like the deep seas and deep space. It was an extraordinary venture, which succeeded through prolonged endeavours in a little over a decade to survey the best part of the planet; both incentives, besides, effectively created a new legal and geopolitical domain. The area south of 60º S latitude was, ostensibly, cordoned off to political and territorial disputes;[28] beyond this gradient on the map was posited a cold shelter in a period of prospective meltdown.

While generating a culture of containment, it is also the latter, the systems of thought generated by the Cold War, that IGY and Antarctic Treaty wished to escape: the project was significant not simply with respect to the development of earth sciences but also pertaining to the creation of an apparent interlude from cold confrontations. The agreement's conditions stipulate the formation

of an international zone, reserved for the pursuit of an ideal—pure science—where data is shared and global cooperation exists; the Antarctic, accessible for scientific research, is not to be used for nuclear weapons testing nor as a disposal site, a great concavity, for radioactive waste. Unlike its polar opposite, transformed into an armed perimeter and subsumed into the Cold War vortex, the Antarctic is demilitarised in 1967, like the Moon, with which it shares so many affinities. And yet, this cooperative internationalism is compromised, just like fantasies of pure science reveal themselves as simply that, flights to a snow-white snow-land that allow a negation of hostilities all the while concealing, beneath seemingly 'neutral' investigations, the clandestine ops of the Cold War.

The logo of the IGY already discloses schizophrenia; the emblem, depicting 'a satellite and its orbit to indicate IGY interests in the physics of the high atmosphere', shows the earth partly light and partly dark, suggesting, according to Hugh Odishaw, the Executive Secretary of the project's US National Committee, 'solar relationships'.[29] What is more apparent, however, is the IGY's dual thrust, the production of scientific knowledge that is subsequently absorbed into the war machine. The symbol, in its split, refers to the bi-polar world and hints at other bi-faced Cold War arrangements with its one side bathed in light while the other remains in darkness.

In this vein, and in contrast to the Arctic, the Antarctic's martial appropriation takes place insidiously, spectrally, and is less evident in concrete manifestations—the northerly materialised fantasies of defence—than in

calculations, measurements that alter lines on maps adjusted to reflect the readings gleaned through seismic traverses. Conducted, among others, by Rear-Admiral Richard Byrd working for the US Navy's Antarctic Development Program (1946–1947), such findings regulate the networks of points already known, and thus improve the grid imposed on the planet upon which weapons systems, for accurate targeting computations, rely. The precision of nuclear warheads, strategic long-range bombers and ICBMs depends on global datums, on a coordinate frame that is itself subject to geodetic, gravity and magnetic surveys, reconnaissance photography, and the recording of seismic waves, the latter one of the main aims of the American IGY agenda. The applications of these endeavours, conducted under the pretence of transparency, directly feed into the navigation systems of ballistic missiles,[30] the rocket bodies that follow parabolic flight paths traced by data inputs, by the controlling intelligence of the gyrocompass.

Partly brought about by the use of steel in ship construction, which alters magnetic influences on conventional orientation tools, the gyrocompass accomplishes the possibility of space travel, intra- or extraterrestrial. The gadget emerged out of a simple mechanism, most famously constructed by Léon Foucault in 1852; his pendulum set the example for later investigations into the matter, such as the experiments conducted by Dr. Hermann Franz Joseph Hubertus Maria Anschütz-Kaempfe, who worked on a prototype in the early 1900s. The device was subsequently enhanced by Elmer Sperry as well as by Albert Einstein, who, after World War I, suggested a solution for centring the floating sphere through a magnetic coil: inside the gyro system,

the sphere hangs without making contact with the case.[31] In due course, through transfer applications, the gyrocompass led to the development of automatic ship-steering, servomechanisms or mechanised pilots that do not rely upon external guidance or upon human navigators. The device in time becomes the heart, or cybernetic black box equipment, of ICBM design.

The word cybernetics stems from the Greek word for steersman; Norbert Wiener devised it in conjunction with his colleague Dr. Rosenblueth to cover 'the entire field of control and communication theory'.[32] Control is inside, invisible; David Pascoe calls black boxes 'dark machines'[33]—from the start, theoreticians of such devices, as Philipp von Hilgers points out, '[practice] restraint', because to analyse a black box means to proceed from the assumption that 'enlightenment is not possible in every case'.[34] Von Hilgers refers, of course, to W. Ross Ashby, whose 1956 book *Introduction to Cybernetics* maintains that,

> there comes a stage ... as the [black box] system becomes larger and larger, when the reception of all the information is impossible by reason of its sheer bulk. Either the recording channels cannot carry all the information, or the observer, presented with it all, is overwhelmed. When this occurs, what is he to do? The answer is clear: he must give up any ambition to know the *whole* system.[35]

Machines become concepts, 'epistemic object[s]',[36] whose components escape definition in contrast to its interfaces, which appear when different disciplines,

like soft- and hardware elements, combine into the experimental structure that is the black box. What this leads to is an acknowledgement that the device no longer functions as a tool, and beyond that, as a manifestation of Enlightenment that by virtue of its existence circumscribes the world, but that it has become, as the term already implies, a phenomenon/mechanism referred to as secret, sublime: a dark machine.

Its antecedent though—since black boxes cannot be opened, any investigation of their functioning has to travel back to a moment before the formation of 'uncrossable limits'[37]—spins around desires of access. If there is, as von Hilgers notices in Ashby's work, a tendency to 'globalize the black box theory' so as to 'apply it to all walks of life',[38] the Antarctic, across the narratives that pass through its expanse, easily takes on the attributes of such a theory or machine. A continent of 'extreme light', which by its very excess 'obliterates all objects', South Pole radiance is 'converted into a species of darkness';[39] it is both a mirror, reflecting inquiries back to the observer, and a black box: 'No light enters and none escapes. Ice clouds seal off the sky and ice sheets seal off the earth'.[40] While Ashby's line of inquiry develops new insights through 'partial knowledge',[41] that is, the recognition of limits, the developers of the gyrocompass, among them Anschütz-Kaempfe, held no such convictions: the gyrocompass is an implement of orientation and, more so, of resolute purpose and great directive force in a system suspended from external influence.

Anschütz-Kaempfe's navigational instrument, a piece of equipment that shrinks the world to nothing, arose out of his desire for a submarine voyage to the North Pole;[42] the 'art of steermanship,' as Ashby writes in *Introduction to Cybernetics*, cannot depend on a machine subject to the magnetic fields derived from a vessel's steel shell and motors, but has to pull away from outside conditions into an arrangement that is 'information-tight'.[43] It is in those terms, the vocabulary and trajectories of isolation, through complex internal mechanisms that 'are not fully open to inspection',[44] that the journey to doubled North or South Pole is imagined and configured. Regardless of what their differing models of thought might propose, Anschütz-Kaempfe's proto-cybernetic gadget only diverges, other than through the obvious technological upgrades, from Ashby's on an analytical or philosophical level, in that the latter confronted the technology itself, not its application. Really, however, it is the device's performance and (future) incorporation that matters: the gyrocompass is the means to, and beyond, the end of the world.

The Antarctic ice itself, that unyielding bulk, is (to recall) frequently approached like a thing from another world: sea ice floes resemble 'belt[s] of asteroids [circling] endlessly', while icebergs loop 'like planets around their peculiar icy sun'.[45] As such, as the earthly analogue for journeys into outer space, the mirror image of the destination—the moon—that the rocketry programme wants to attain, the Antarctic's 'resident narratives',[46] to be retrieved by gyro-mechanisms, refer to dual records, the congealed vestiges of both a prehistoric past (via preserved specimen) and possible futures. The two so often coincide in SF: bear in mind H.P. Lovecraft's 'At the Mountains of

Madness', published in 1931, around about the time that Richard Byrd was travelling south. The aim of the Miskatonic University Expedition is to travel past the mountain ranges and plateaus already explored 'in varying degree[s]' by 'Shackleton, Amundsen, Scott and Byrd',[47] and to unearth soil and rock samples in the pre-Cambrian strata. The excavation occurs at hand of a 'remarkable drill'[48] devised by a member of staff at the University's engineering department, a mechanism combining 'the ordinary artesian drill principle with the principle of the small circular rock drill',[49] whose head of steel thrusts into space. In the continent's bedrock, the expedition hopes to find evidence of earlier life encased in ice archives.

The chosen implement, the drill, makes reference to the mine: Antarctica is an interior (as well as outer) space, whose deep time and narratives of disaster are accessed through technologization. The drill is only the beginning; Byrd's mechanism of penetration is the airplane, but the future of funded Cold War space exploration lies with the rocket, whose navigation system reverts back to the gyrocompass. The link between the latter and polar exploration becomes evident when considering that both are forms of closure, though Byrd, for one, recognises that perspectives on the continent are hardly ever absolute, or indeed constant. His two books, *Little America* and, later, *Alone* differ in their outcomes, though their premises, to a certain extent, coincide: both texts are drawn to inertia, but while *Little America* demonstrates a will to vanquish and resist its 'vast empire', *Alone* succumbs to its 'centripetal action'.[50] Byrd's comment that it is only 'limited and lazy' men that 'find themselves slipping [...] into a dull, stupid, dispirited monotony'[51] in the end applies to himself,

failing to mobilize his body as steel figure in control over an environment that is, in *Alone* and right from the start, marked out as nothingness, a gleaming void. Yet even in *Little America* Byrd does not concur with Amundsen's statement—itself in opposition to John Wylie's comment that the Norwegian's voyage is 'expressed as an affinity'[52]—that the airplane 'is the only machine that can beat the Antarctic'.[53] Byrd's book on the outpost he set up on the Ross Ice Shelf in January 1929 ends with an acknowledgement of limits: 'The Antarctic has not been conquered. At best we simply tore away a bit of the veil which conceals its secrets'.[54]

What is noteworthy, especially with respect to Amundsen's conviction, is the intimation of technological mastery: the voyage of discovery not as an affinity but as subjugation realised through the machinations of techno-science that effectively attack their mirror image, the black box that is Antarctica. The continent's diffusive whiteness prevents revelation of core knowledge; the starting point to enter its repositories of information should be, as W. Ross Ashby advocates, to 'make no assumptions at all about the nature of the box and its contents, which might be something … that has just fallen from a Flying Saucer'.[55] Explorers comply—Antarctic treks resemble drifts through interstellar space—but nonetheless attempt to force under/other-worlds of data into jars, the tidy spaces of shacks that, as time goes on, disintegrate into asteroid belts of dirt, of half-eaten frozen food.[56]

The practical applications of Byrd's polar containment culture are taken up by mechanisms embodying closed worlds, such as his meteorological

instruments: glass-enclosed gadgets featuring 'revolving drums and pens [that] automatically [record] wind direction and velocity'.[57] These initially provide comfort; their 'busy, friendly voices' have 'a pleasant, narcotising effect', while the few words and world news, transmitted from base camp—light years removed—sound 'hollow', 'unfamiliar' and appear 'as meaningless and blurred as they might to a Martian'.[58] Machines, like carbon monoxide, however, (of which Byrd very nearly died) dull the senses and instigate a deadly stupor. Rather than indicative of a 'civilisation' that is 'technologically alert',[59] these instruments induce it to go to sleep. Byrd's glass-covered devices predict the future, occupied by an all-embracing technology suspending worlds inside machines. Regardless of his personal convictions, these devices encapsulate the faith placed in gadgets whose potential to reduce and eventually leave the earth extends beyond the Antarctic, whose lunar conditions were intensified during the IGY, just as the rocket program was really starting to take off. It is, therefore, as much the actual mechanism of the gyrocompass that is relevant to polar exploration than the idea—Anschütz-Kaempfe's desire for voyages into freezing vacuums encased in metal—that manages to condense the disposition of the emergent American Cold War techno-culture. The direction the navigational instrument takes matters exponentially because it goes ballistic, in terms of both the ICBMs it is eventually fitted into as well as in relation to the hyperboles that technological supremacy professes to complete. The gyrocompass behaves as a harbinger of the cold world to come, whose 'radically bounded scene'[60] always stands at the brink of eruption or implosion.

Servomechanisms

The gyrocompass, a cybernetic system, is indicative of systems mergers: '[f]or many years Dr. Rosenblueth and I have shared the conviction that the most fruitful areas for the growth of the sciences were those which had been neglected as a no-man's land between the various established fields',[61] according to Norbert Wiener. Wiener further refers to cybernetics, the interface between flesh and machine, as a subject of knowledge situated in 'boundary regions', the 'blank spaces on the map of science'[62] that are to be 'beat[en]' by interdisciplinary research. Wiener's book lists devices that, in a narrative of ascension, proclaim the 20th Century as 'the age of servomechanisms':

> The machines of which we are now speaking are not the dream of the sensationalist, nor the hope of some future time. They already exist as thermostats, automatic gyro-compass ship-steering systems, self-propelled missiles—especially such as seek their target—anti-aircraft fire-control systems, automatically controlled oil-cracking stills, ultra-rapid computing machines, and the like.[63]

The organism that remains absent in this enumeration is the cyborg, a self-regulating man-machine system that Manfred Clynes and Nathan Kline discuss in a paper published in *Astronautics* in September 1960. Yet it emerges before then in otherwise 'blank' spaces, in the Antarctic, which induces changes in the body of the explorer already coupled, by the 1930s, to

the airplane. Even prior to that, though, gaps in evolutionary chains have the potential to be completed at the South Pole; the leap from dinosaur to bird—evidence thought to be found in the eggs of emperor penguins collected during the second Scott expedition—also anticipates the development of man into astronaut, or into machine.[64] Already functioning as a rehearsal space—those 'boundary zones'—for interdisciplinary intellectual practices, Antarctica further prompts the transformation of the human body which, mirroring the gyre of gadgets, withdraws from its surroundings through shell encasings. Herbert Ponting, in the *Great White South*—whose preface clearly militarizes the endeavour; it is a book about the romance of self-sacrifice to the 'great' empire—remembers the moment the Scott polar party's sub-group returned after investigating the emperor penguins' nesting habits:

> They came staggering in with helmets encrusted in ice, and with pounds of ice massed around their mouths. As they were masked to protect cheeks and noses, we could not see their faces; but we could see their eyes sparkling in their icy visors […]. We were all anxious to help them out of the armour that encased them […] and some suggested getting a 'can opener.' We had to excavate them carefully, and when finally they were exposed, their faces bore unmistakable evidence of the terrible hardships they endured. Their looks haunted me for days.[65]

It is Mawson who, in 1915, prior to Ponting's publication, reproduces an analogous picture to the one that Scott's photographer describes. The photograph in question shows a face erased inside the tunnel of the jacket's

hood: within the bounds of the helmet, there is nothing, just a frozen void enclosed by fabric or sheathed in 'armour'. Not even the eyes are visible here; 'pounds of ice' swallow up the features in emptiness, in an awful whiteness that replaces flesh and skin with a hollow heart, the landscape of snows that also exists without. When the bodies are 'excavated' and 'finally … exposed', a process that involves cutting through hard substance rather than soft tissue, which has turned to ice/metal, they are marked by 'the terrible hardships they endured'. Both texts arrest corporeal mutation, a hardening that is at once a preservation—a documentation of adversity and near-death—than it is an unravelling, the '[staggers]' or lurches of the living dead. As a representation, it is evidently a revenant; the face as ice halo figures as the artwork for John Carpenter's *The Thing* (1982). In the illustration, a dark outline 'encased' in reflective crystals radiates outwards flashes of light streaming forth from its visor, no longer 'massed' in ice but burning in the luminous nimbus of an implosion.

Flesh becomes icy, approximates metal: the skin, frozen to its enclosure, forms a shell to be cut open by 'can-openers'. In this extraterrestrial environment, 'austere as platinum', explorers 'seem to be groping in [the] cold reaches of interstellar space'[66] while they further lose their human attributes. Suspect to begin with, because so easily lost or mimicked,[67] men, in Campbell Jr.'s short story 'Who Goes There', providing the template for Carpenter's movie, appear as cyborgs, their hair, 'crisp and hard', resembling 'short, steel wires', their eyes assuming the 'gray' colour of 'fractured steel'.[68] 'If McReady was a man of bronze, Nauls was all steel. His movements, his thoughts, his whole bearing

had the quick, hard impulse of a steel spring. His nerves were steel—hard, quick-acting, swift-corroding'.[69] The *Stahlgestalt* stands in contrast and opposition to an amorphous being, the Thing that—jelly-like, 'fish-belly white',[70] and continually becoming—destabilizes ontology in, but also beyond, this weird Antarctic space.[71]

As soft- and hardware interface, a Great Barrier, the erstwhile title for the Ross Ice Barrier, is indeed crossed. In SF stories, processes of disintegration also frequently double up as integrations, inducing the creation of a hybrid between undead machine and living organism. The combinations that occur, however—the trans-antarctic mountains comprise a zone 'entirely of the 'trans', of moving across, a place of transference, of switch-over'[72]—are not usually welcomed but are distinguished as invasions. The Great Barrier then really constitutes 'a true frontier of the human',[73] a threshold at which conceptions of ontology mutate. This place of submergence is also one of emergence: human 'systems' combine with ice and steel to form cyborg prototypes.

Trans-Antarctica

As a place of transition, Trans-Antarctica functions as an 'area of eternal change'[74] which affects the register of words available to describe it. Stephen Pyne finds that language is 'stripped of descriptive complexity'; terms are 'pared to monosyllables'[75] and, pulled towards dead ends and endless repetitions, cannot resist inertia's empire/vampire—an impression that is only

half-accurate because words, too, undergo modifications. 'If I ever saw the inadequacy of words', so writes Byrd, 'I did then', in the Antarctic, at Little America, where close proximity to colleagues, the torpor during the polar winter, prompts 'innocent phrases' to '[twist] and [distort] out of original meaning'.[76] Months passed in double-boarded entombment yield their own terminological limitations and deformities: in sealed spaces, paranoia, the condition of being in such systems, infiltrates existence, continually situated at the threshold of switch-over and extinction.

It is the threat of dissolution, paradoxically a similar wish to the one that brought some of them there to start with (Byrd's 'flight' to the South Pole is exactly that, to exist at a remove, the outside coming to nought),[77] which explorers try to guard against, this risk at being 'reduced to a crawling thing on the margin of a disintegrating world'.[78] Byrd, on his own at Advance Base, attempts to neutralise the threat by cleaning his shack in an effort to keep the tunnels 'straight'.[79] He endeavours to be systematic in the organisation of his unit or universe; the arrangement of fuel drums, food preserved in jars, containers and boxes stored in tidy interiors all amount to measures of defence intended to exclude the 'cold white incandescence'[80] outside that he finds, even at little America, so hard to keep at bay and detain in expressions. '*Cones, summits, peaks, flanks, ridges, turrets*'—Byrd enumerates ice structures, cavernous and protruding, the extremities of landscapes, and '[scrambles] them together, [adds] a dash or two of adjectives' and arrives, 'at best', at an 'approximation' of the territory.[81] Italicised, the list itself is warped

in terms of appearance; words stand slanted, as if precariously balanced at edges.

Rather than manifesting a preponderance for the monosyllabic, expedition accounts shift toward amalgamations. Linguistic interfaces mirror the conjunctions joining together apparent polarisations: soft tissue and steel, the living and the lifeless, the white emptiness that is, nonetheless, also 'rainbow-rimmed',[82] as Mawson notes. His book is in awe; if anything, the affinity that Wylie attributes to Amundsen exists in Mawson's account, approaching a meditation on a world of colour, reefs that, tentacular, 'foreground an indescribable weirdness'.[83] Even though Antarctica remains (deadly) sublime, Mawson, possessed, observes:

> Powerless, one was in the spell of an all-enfolding wonder. The vast, solitary snow-land, cold-white under the sparkling star-gems, lustrous in the radiance of the southern lights; furrowed beneath the icy sweep of the wind, we had come to probe its mystery, we had hoped to reduce it in terms of science, but there was always the 'indefinable' which held aloof, yet riveted our souls.[84]

In effect Mawson, like Byrd, blind in his plane, admits an awareness of limits. The phrases he uses are combinations of expressions, merged by way of hyphens, a method he retains for the rest of his study. Broken up into two volumes, he struggles to 'keep the narrative within limits', to fit the 'bounds of knowledge', which 'have broadened to the infinite',[85] inside a bounded, finite

form. Terms are composites—efforts to approach the infinite—and stretch on, are double-sided compounds. The 'all-enfolding' 'cold-white' 'snow-land' lying under 'sparkling star-gems' are prismatic constructions at once articulating separation and synthesis, accumulating into fused, coagulated entities that bounce off and defer meaning, especially if they come in quick succession. There always remains 'the "indefinable"', the word in quotation marks, in solitary confinement or quarantine, a precaution that proves to be futile. (Bear in mind Wiener's definition of the 'age of servomechanisms', which similarly abounds with signs of linkage: 'gyro-compass ship-steering systems, self-propelled missiles—especially such as seek their target—anti-aircraft fire-control systems'.) This language of transferability reflects the mutability of the human body induced by the Antarctic, at once 'the last stronghold of inertness' and, concurrently, 'all movement and change'.[86] Here, the formation of apparent opposites into a functioning being is already in progress, way before the nuclear/containment culture of the Cold War actively requires such united states.

If, prior to the Cold War, Antarctica performed as a site to test and inspire 'great Empire builders',[87] then the legacy of these expeditions remains just that: to raise a sublime, cyborgic superpower. Closed-world devices like the gyrocompass materialise the discourse of Enlightenment/Heroic Age expedition and Cold War imperialism: Antarctic geography, though demilitarised, nonetheless becomes a zone of rehearsal to prepare total war. However reliant on strategic areas like the Arctic to defend the 'free world', Cold War containment culture is equally carried out by ballistic technology,

whose manifestations are not always visible. IGY and Antarctic Treaty, one of whose major architects was Richard Byrd,[88] continue to covertly implement a permanent state of preparedness that finds its expected end-point at the South Pole. Because stratospheric though it might be, superpower really is parabolic: during a rocket launch, in the guidance, a pendulum centred by a magnetic field swings off-centre and allows current to flow—'the more acceleration, the more flow'[89]—until the vehicle reaches *Brennschluss*, a controlled burning at which point it falls and travels toward its target. Ground Zero, in this case, is Antarctica, where Byrd repeatedly notes that he feels like the 'last survivor' of a world bygone and perceives 'tidal wave[s] of ice … crushing everything before [them]': 'I could see nothing but the obliterating ice, hear nothing but the wind, and feel nothing but the rigidity of death'.[90] Towards the end of his account, the direct citations from his diary, included here and there throughout the book, amount to little more than ellipses that are only interrupted by the word 'Nothing … nothing …'.[91]

These words are echoes: they resound with the consequences of closed-world techno-culture whose destructive, narcotic superpower instigates, on the ground, a 'Deathkingdom' that envelops Byrd—his mind, impelled through 'the universe with the audacious mobility of a Wellsian time-space machine', pictures times to come, 'the way the world will look to the last man'.[92] If Byrd, at the opening stages of *Alone,* can only 'wish' he had thought to propose a United States Weather Bureau program that sought to install robot observers in the polar regions to monitor 'ruinous storms',[93] he must reconcile himself, in the end, to be at once bystander to, last survivor of, and agent in a

politics expressed through ticking mechanisms, the time-bombs of the future Cold War. 'How pitilessly resolute and faithful [the instruments] are. In the cold and darkness of this polar silence they steadfastly do their appointed jobs, clicking day and night'.[94] As his syntax is suspended in sequences of ruptures, he can only distinguish nothingness, the zeroes displayed on the dials of his gadgets. What they indicate is both a moment of emergence and impact: imperial schemes adjust into a Cold War space race, beginning and already at its end, or at the beginning of the end. Technology, though—cyborgic systems that unleash, not merely observe, 'ruinous storms'—keeps operating, 'tick-tick, tick-tick, tick-tick',[95] with unbroken regularity, as if indicative of an eternal, self-evolving techno-pulse. This process of half-life, however, suggests a research agenda and fantasy of preparedness in the service of a superpower imaginary that is not technologically determined but propelled onwards through machines, the servomechanisms of world-conquering and world-ending fictions. Against the blinding, glacial films of the South Pole flash intimations of light-death: the Antarctic, site of Cold War hauntings, prefigures the terminations of the atom bomb and of a trance-like, death-like culture dreaming of annihilation.

I would like to thank the anonymous reviewer at *Textual Practice* for his/her helpful comments and generous feedback.

[1] Klaus Theweleit, *Male Fantasies,* 2 vols., vol. 2 (Cambridge, Polity Press, 1987): 206.

[2] Richard Byrd, in *Alone*, writes the 'the cold and darkness deplete the body gradually; the mind turns sluggish; and the nervous system slows in its responses'. (London: Readers Union Ltd. & Putnam & Co Ltd., 1939): 95.

[3] Theweleit, *Male Fantasies*, vol. 2: 207.

[4] Stephen J. Pyne, 'The Extraterrestrial Earth: Antarctica as Analogue for Space Exploration' *Space Policy* Vol. 23, No. 3: 147.

[5] Herbert Ponting, *The Great White South, or With Scott in the Antarctic* (London: Gerald Duckworth & Co., 1921): Foreword.

[6] The concept of a 'terminal' zone refers to Scott Bukatman, *Terminal Identity: The Virtual Subject in Postmodern Science Fiction* (Durham, NC and London: Duke University Press, 2005 (1993)). There is, further, this linkage between polar regions and the 'post'/'non'-human via *Frankenstein*, the Ur-text that remains outside the bounds of this essay. Thanks to Jason Edwards for reminding me of this connection.

[7] David Seed, *American Science Fiction and the Cold War* (Edinburgh: Edinburgh University Press, 1999): 1.

[8] Ibid: 2.

[9] On the discourse of 'wasteland' creation in the Western imagination, see John Beck, *Dirty Wars: Landscape, Power, and Waste in Western American Literature* (Lincoln & London: University of Nebraska Press, 2009).

[10] Thomas Pynchon, *V.* (London: Vintage, 2000 (1963)): 206.

[11] Melvin Conant, *The Long Polar Watch: Canada and the Defence of North America* (Westport, CT: Greenwood Press, 1962): 40.

[12] Thomas Pynchon, *Gravity's Rainbow* (London: Vintage, 2000 (1973): 273.

[13] Jean de Pomereu, 'Re-imagining Antarctica', in Kathryn Yussof (ed) *Bipolar* (London: The Arts Catalyist, 2008): 90.

[14] Adam Piette, *The Literary Cold War: 1945–Vietnam* (Edinburgh: Edinburgh University Press, 2009): 79.

[15] Ibid: 75.

[16] Conant, *The Long Polar Watch*: vii.

[17] Ibid: 22.

[18] Piette, *The Literary Cold War*: 79.

[19] See Colin Summerhayes and Peter Beeching, 'Hitler's Antarctic Base: The Myth and the Reality' *Polar Record* 43, 224 (2007): 14.

[20] Jacqueline Dutton, 'Imperial Ice? The Influence of Empire on Contemporary French and British Antarctic Travel' *Studies in Travel Writing* Vol. 13, No. 4 (December 2009): 372.

[21] Ibid.

[22] Richard Byrd, *Little America: Aerial Exploration in the Antarctic and the Flight to the South Pole* (London: G.P. Putnam's Sons, 1931): 192.

[23] Thanks to Adam Piette for bringing this to my attention.

[24] On the provenance of a 'wise and heroic race' coming from the North, and subsequent conspiracy theories of Nazi bases in Antarctica, see Joscelyn Godwin, *Arktos: The Polar Myth in Science, Symbolism and Nazi Survival*. (Kempton, ILL: Adventures Unlimited Press, 1996) and Summerhayes and Beeching, 'Hitler's Antarctic Base': 1–21.

[25] Edmund Burke, *A Philosophical Enquiry into the Origin of Our Ideas of the Sublime and Beautiful* (London: Basil Blackwell, 1987 (1957)): 80.

[26] Piette, *The Literary Cold War*: 100.

[27] Christy Collis and Klaus Dodds, 'Assault on the Unknown: The Historical and Political Geographies of the International Geophysical Year (1957–8)' *Journal of Historical Geography* Vol. 34, No. 4 (October 2008): 556.

[28] See C. Collis and K. Dodds, 'Assault on the Unknown': 556 and also Simon Naylor, Katrina Dean and Martin Siegert, 'The IGY and the Ice Sheet: Surveying Antarctica' *Journal of Historical Geography* Vol. 34, No. 4 (October 2008): 574–595.

[29] C. Collis and K. Dodds, 'Assault on the Unknown': 556.

[30] See Naylor, Dean and Siegert, 'The IGY and the Ice Sheet': 584–585.

[31] See Anschütz & Co. *The Anschütz Gyro Compass: History, Description, Theory, Practical Use*. [multiple translators] Kiel, 1910.

[32] Norbert Wiener, *Cybernetics, or Control and Communication in the Animal and the Machine* (New York: Wiley, 1948): 19.

[33] David Pascoe, 'Author and Authorpilot: The Narratives of Servomechanisms' (Utrecht: Labor Gafimedia BV, 2010): 13.

[34] Philipp von Hilgers, 'The History of the Black Box: The Clash of a Thing and its Concept', *Cultural Politics* Vol. 7, No. 1 2011): 42.

[35] W. Ross Ashby, *Introduction to Cybernetics* (London: Chapman & Hall Ltd., 1961 (1957)): 106.

[36] Von Hilgers, 'The History of the Black box': 43.

[37] Ibid: 42. Von Hilgers further notes, 'a black box that can be opened is not a black box' (44); they are also explosive, as Warren Steele notes: 'Breaching the surface in order to expose or understand is anything but revealing, because by disclosing the image's internal make-up, one is merely transforming an already established system into something chaotic, and therefore unintelligible, as well as completely uncontrollable.' (39) The only thing to do is to travel back in time, 'to a point before closure' (46). Warren Steele, *Body of Glass: Cybernetic Bodies and the Mirrored Self*, PhD. Diss, University of Glasgow, November 2007.

[38] Ashby, *Introduction to Cybernetics*: 43.

[39] Burke, *A Philosophical Enquiry*: 80.

[40] Stephen Pyne, *The Ice* (London: Phoenix, 2004 (1986)): 388.

[41] Ashby, *Introduction to Cybernetics*: 106.

[42] Donald Mackenzie, *Inventing Accuracy: A Historical Sociology of Nuclear Missile Guidance* (Cambridge, MA & London: MIT Press, 1990): 34.

[43] Ashby, *Introduction to Cybernetics*: 1 & 4.

[44] Ibid: 86.

[45] Pyne, *The Ice*: 2.

[46] Kathryn Yussof, 'Archive Fever' in Yussof (ed), *Bipolar* (London: The Arts Catalyst, 2008): 7.

[47] H.P. Lovecraft, 'At the Mountains of Madness', in *The Whisperer in the Darkness.* Collected Stories, Vol. 1 (Ware: Wordsworth Editions Ltd., 2007 (1931)): 278.

[48] Ibid: 277.

[49] Ibid: 278.

[50] Byrd, *Little America*: 198.

[51] Ibid.

[52] John Wylie, 'Becoming-Icy: Scott and Amundsen's South Polar Voyages, 1910–1913' *Cultural Geographies* 2002 (9): 257.

[53] Byrd, *Little America*: 24.

[54] Ibid: 392.

[55] Ashby, *Introduction to Cybernetics*: 87.

[56] See Byrd, *Alone*: 274.

[57] Ibid: 52.

[58] Ibid: 96, 142 & 148.

[59] Ibid: 13.

[60] Paul N. Edwards, *The Closed World: Computers and the Politics of Discourse in Cold War America* (Cambridge, MA & London: MIT Press, 1996): 12.

[61] Wiener, *Cybernetics*: 8.

[62] Ibid: 8–9.

[63] Ibid: 55.

[64] The man-machine amalgamation also includes animal components, as Donna Haraway notes in *Primate Visions: Gender, Race and Nature in the World of Modern Science* (London: Verso, 1992), where she identifies a 'new kind of historical entity' that joins together the 'space ships, the recording and tracking technologies, animals and human beings.' (136) The explicit reference, here, is of course HAM, the first American/ape in space. Thanks to Duco van Oostrum for this reminder.

[65] Ponting, *The Great White South*: 153.

[66] Byrd, *Alone*: 57 & 96.

[67] On this note, see E. Glasberg, '"Who Goes There?" Science, Fiction, and Belonging in Antarctica' *Journal of Historical Geography* Vol. 34, No. 4 (2008): 639–657.

[68] John W. Campbell, Jr., '"Who Goes There?", in *The Best of John W. Campbell* (London: Sidgwick & Jackson, 1973 (1938)): 98.

[69] Ibid.

[70] Ibid: 106.

[71] The reference to the 'weird' is deliberate, considering that this particular genre of writing is precisely associated with how China Miéville describes the style, whose 'nonpareil iteration [...] is the tentacle', something formless, soft, yielding, excessively tactile. See China Miéville, 'M.R. James and the Quantum Vampire: Weird; Hauntological: Versus and/or and and/or or?'

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[72] Laurence A. Rickels, *The Vampire Lectures* (Minneapolis and London: University of Minnesota Press, 1999): 55.

[73] Mark Rawlinson, ''Waste Dominion,' 'White Warfare' and Antarctic Modernism', *Tate Papers*. October 1, 2010. http://www.tate.org.uk/research/tateresearch/tatepapers/10autumn/rawlinson.shtm

[74] Byrd, *Little America*: 194.

[75] Pyne, *The Ice*: 387.

[76] Byrd, *Little America*: 315 & 223.

[77] At the beginning of *Alone*, Byrd states that, 'I wanted something more than just privacy in the geographical sense. I wanted to sink roots into some replenishing philosophy'. (7)

[78] Byrd, *Alone*: 156.

[79] Ibid: 51.

[80] Ibid: 234.

[81] Byrd, *Little America*: 315.

[82] Douglas Mawson, *The Home of the Blizzard: Being the Story of the Australasian Antarctic Expedition 1911–1914,* Vol. 1 (London: William Heinemann, 1915): 172.

[83] Ibid: 38.

[84] Ibid: 157.

[85] Ibid: vii & ix.

[86] Byrd, *Little America*: 198 & 117.

[87] Ponting, *The Great White South*: Foreword.

[88] Glasberg, '"Who Goes There?"': 642.

[89] Pynchon, *Gravity's Rainbow*: 301.

[90] Byrd, *Alone*: 77 & 117.

[91] Ibid: 223.

[92] Ibid: 131 & 74.

[93] Ibid: 14 & 13.

[94] Ibid: 204.

[95] Ibid: 96.